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CLAIMS

1. A vacuum tight coupling for end portions (1,2) of two tubular sections, the size of the inner space of a first end portion (1) being smaller than that of a second end portion (2), the second end portion having a flange extremity (11) axially slidable over the first end portion to abut the flange extremity 11 against a peripheral outer abutment ring (10) on said first end portion, the coupling comprising at least one sealing ring (4,5) between said end portions in their overlapping contact area and further comprising a clamping ring (3) with a substantially cylindrical outer surface and being composed of two substantially equal halves (12,13), each clamp half having a semi-circular or U-shaped cross section with an inwardly oriented recess (6), said recess enclosing said flange extremity (11) and said abutment ring (10) and being adapted to positively and axially clamp the abutment ring (10) against the flange extremity (11), the two ring halves being fixed to each other at their extremities (15,16) by means of fixing means comprising in at least one place bolting means (9), the axis (14) of which is perpendicular to the longitudinal axis of the coupled tubular sections and substantially tangential to the clamping ring periphery.
2. A coupling according to claim 1 wherein said flange extremity (11) is a separate ring.
3. A coupling according to claim 1 or 2, wherein the ring halves, besides said bolting means (9) for fixing their extremities (15,16) in one place comprise pivoting means (17) for fixing them in their opposite extremities (21,22).
4. A coupling according to any previous claim, wherein a tubular insert (20) is coupled between said first and second end portion, and wherein the insert end (23) facing the first end portion (1) is a ring which can slide axially over said first end portion whereas the opposite insert end (24) is a ring over which said second end portion (2) can slide.

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5. A coupling according to any previous claim, wherein the length of the overlap portion between the first and second tube portions (1, 2) is 50% or less, preferably 30% or less, more preferably 20% or less of the inner diameter of the first portion.
6. A coupling according to any previous claim, wherein the length of the overlap portion between the first and second end portions (1, 2) is 5% or more of the inner diameter of the first portion.
7. A coupling according to any previous claim, wherein the coupling is an high vacuum or ultra-high vacuum coupling.
8. A coupling for a cylindrical sputtering target comprising the coupling according to any of claims 1 to 7.
9. The coupling for a cylindrical sputtering target according to claim 8, wherein the fixing means of the clamping ring (3) is located on the side of the coupling remote from the sputtering target.
10. The coupling for a cylindrical sputtering target according to claim 8 or 9, further comprising an anti-arcing element (32, 36) attached to the clamping ring (3) on the same side as the sputtering target for preventing arcing.
11. The coupling for a cylindrical sputtering target according to any of claims 8 to 10, wherein the anti-arcing element is conductive or insulating.
12. The coupling for a cylindrical sputtering target according to any of claims 8 to 11, wherein at least one groove (38, 39) is provided between the anti-arcing element and the clamping ring (3).

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